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ABSTRACT

This annotated model outline provides guidelines for writing a plan for using computers and related learning technologies in schools. It is consistent with the components of the Merrimack Education Center's technology applications planning process, and can be modified to accommodate additional components and special school district requirements. The planning process includes several basic tasks including forming committees, assessing needs and capabilities, and formulating program goals and objectives. It is suggested that the following areas be included in a school district's technology plan: (1) the school district, current status and objectives; (2) curriculum development; (3) computer hardware, software, and technical support; (4) staff development; (5) program organization and implementation; (6) program budget; and (7) other considerations. A complete checklist of planning process steps and a sample table of contents from a typical plan are appended. (4 references) (DB)

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A Template for Preparing a Technology Applications Plan

IR 014 978

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About this Publication

This publication is one component of the Computer Applications Planning series, a continuing service of the Merrimack Education Center. It is intended for the use of administrators of local schools, state departments, or field service centers such as intermediate units or technology centers. This publication should assist educators in their quest for effective practices on technology implementation.

The staff welcomes and profits from the thoughtful ideas, suggestions and comments contributed by participants from our seminar series. Correspondence concerning the CAPS seminar series and technology applications within the curriculum should be addressed to the Merrimack Education Center.

Because these publications are intended as a series of "tools" for use in local schools, we have provided the publications and separate components in loose-leaf format to serve as part of a planning notebook. Supplementary materials, a training trainers notebook, is available for certified trainers in this CAPS publication series.

A TEMPLATE FOR PREPARING A TECHNOLOGY APPLICATIONS PLAN

PREPARED BY THE
MERRIMACK EDUCATION CENTER
CHELMSFORD, MASSACHUSETTS 01824

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A Template for Preparing A Technology Applications Plan

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FOREWORD

School districts cannot afford piecemeal approaches to the application of new learning technologies. The development and operational costs are too high to allow for fragmented and unsystematic efforts. Few districts, however, have the internal capacity to plan and implement the comprehensive programs that are needed to prepare our young people to use new learning technologies for their education and their careers.

To assist local district staff, the Merrimack Education Center (MEC) has established the Technology Lighthouse, a technology applications support system which provides a comprehensive set of planning and implementation services. The support system has six components, each with several services that may be selected by districts individually or as a total package. The components are:

- Planning
- Hardware
- Software
- Training
- Applications
- Implementation Support

A Template for Preparing a Technology Applications Plan is one of the resources of the Lighthouse's planning component. The ***Template*** is designed to be used in conjunction with the Technology Applications Planning Seminars, the ***Computer Applications Planning Guidebook,*** and the ***Computer Applications Program Assessment Profile.*** The Template was developed as an accompaniment for both the CAPS Guidebook and the CAPS training seminars. The content of the ***Template*** closely parallels the content outline for both of these planning resources. Therefore, it provides an excellent scope and sequence guide that can be used and modified according to the needs and priorities of your school district as it develops its written ***Computer Applications Plan***. The ***Template*** serves as a model outline for presenting a comprehensive, long-range plan for incorporating new and emerging learning and information technologies into the schools.

Richard Lavin
Executive Director

Merrimack Education Center

PURPOSE

The increase in resources devoted to using computers and related learning technologies in schools has prompted many districts to establish a formal planning process to guide the development of a sound technology applications program. Having established and conducted an exemplary planning process, the coordinators of the technology planning team then need to transform the work of the committees into a written document.

The purpose of this ***Template*** is to provide an annotated model outline for writing a technology applications plan. The outline is consistent with the components of the MEC's technology applications planning process, and can be modified to accommodate additional components and any special school district reporting requirements (content and form). The ***Template*** is based on the assumption that some preliminary work has been completed, work that is specified in the ***CAPS Guidebook***. MEC's technology applications process includes several basic planning tasks: forming planning committees/teams, assessing needs and capabilities, formulating program goals and objectives, and so forth. These preliminary steps are essential to the systematic development of the curriculum, staff development, hardware and software, and organization and implementation components. For example, some form of program assessment should be conducted, including the preparation of inventories of hardware, software, applications, and staff competencies. A complete checklist of work steps is presented in Appendix A of this document.

The ***Template*** can be used by the committees as they conduct the planning work, serving as a guide to the organization and presentation of material. Some sections can actually be drafted as the work is being conducted, thus making the final writing task easier to accomplish. Most often, the plan will be submitted to the School Board as a proposal for procuring and using district resources. Sometimes it may be used only to inform teachers and administrators of projected activities. Over time the plan will be updated based on accomplishments, and new action steps will be proposed.

The organization of the ***Template*** closely follows the ***CAPS Guidebook*** and seminar modules. The model plan calls for the development of an executive summary placed at the front of the plan. Following an introductory section, the plan is written according to the major program components. Each section contains a detailed description of suggested content, often supplemented with examples that can be adapted for use in the actual plan.

An example of a Table of Contents from a typical plan is shown in Appendix B.

EXECUTIVE SUMMARY AND RECOMMENDATIONS

The model plan calls for the development of an executive summary placed at the front of the plan. Following an introductory section, the plan is written according to the major program components. Each section contains a detailed description of suggested content, often supplemented with examples that can be adapted for use in the actual plan.

The executive summary should be used to provide decision makers with an overview of the plan, emphasizing the major recommendations for immediate and long-term action. Typically, this summary is written last and is created from a "cut and paste" of the core sections of the plan. The summary can then be edited to achieve a concise proposal for action. The executive summary should be as brief as possible; about five to eight pages should be sufficient to present the proposal, including the recommendations. Because the executive summary often is the only document read thoroughly by School Board members and other public groups, it is important to prepare a concise and well written statement.

The recommendations should be based primarily on the action steps that are presented at the end of each chapter. They should be organized in the general sequence of the plan and the specific chapter in the plan to which the recommendation is addressed should be cited. A typical outline is as follows:

- Rationale and Purposes
- Philosophy, Mission and Goals
- Program Status Report
  - Applications
  - Software and Support Materials
  - Staff Development
  - Equipment
  - Organization and Implementation
  - Expenditures to Date
- Proposed Action Steps/Recommendations
  - Curriculum Applications
  - Software and Support Materials
  - Staff Development
  - Equipment
  - Organization and Implementation
- Projected Expenditures
- Summary

I. INTRODUCTION AND OVERVIEW

A. Rationale and Purposes

This section should set the stage for the entire plan, explaining why developing appropriate applications of technology in schools is so important and outlining the major purposes of the plan. A few key points to make:

- Computers and other learning/information technologies are permeating every aspect of our society.
- Not only will many careers require applications of technology, these tools can be used to increase students' learning productivity and effectiveness.
- Schools will need to plan judiciously to be sure that investments in these new learning tools produce large returns.

The purposes of the plan should be stated clearly. For example:

- to establish overall direction for integrating new learning technologies into the curriculum;
- to identify resource requirements in terms of staff, training, hardware and software, and operations support;
- to project how the program will be phased in over a multi-year period.

This section might also identify the major questions or issues that the plan will address. For example:

- What are appropriate applications of computers, and related technologies in the instructional program? How can technology best be used to improve instruction?

- What effect do we anticipate the computer and related technologies will have on existing curriculum and our definitions of basic skills?
- What are the priority areas for implementing educational technology over a three-year time period?
- How will program priorities be phased in over the next several years to assure an equitable distribution of resources to program areas? What grade levels and what subject areas will the computer programs address? (e.g., grades K through twelve?)
- What competencies will teachers and administrators require in order to implement the program? How will they be helped to acquire these competencies?
- How will the program be managed and staffed? What special competencies are needed to provide coordination to overall program activities and resources?
- What new instructional materials and equipment will need to be in place? How will these materials and equipment be distributed, secured, and maintained?
- What will the program cost? How will these costs be allocated for software, training, hardware, staff and implementation (support services, evaluation and refinement)?

Add to this list any specific questions that the School Board or staff have raised.

B. Description of the Planning Process

Describe the planning process and the major planning activities and events. The purpose is to let the reader know that the plan was not developed "in a closet" by a few people, but represents the thinking and work of many educators and community persons. Consider providing the following information:

- planning committee structure and membership (including subcommittees)
- brief description of work on each subcommittee
- brief description of major events and activities (particularly any reviews conducted of preliminary drafts of the plan)
- external sources of advice and assistance used in preparing the plan

C. Overview of the Plan

Provide an annotated outline of what follows. (You may need to write this section after you've prepared a draft of the plan.) Explain that the major recommendations are placed near the front of the plan to focus the reader's attention on key issues and considerations explained in more detail in later sections of the plan. Explain that each section contains a summary of the present status of the program component, a description of what the component *should* look like, and a statement of proposed action steps. Indicate that these action steps are summarized in Section IX, the Summary of Proposed Action Steps. Explain any material that is contained in the Appendices.

II. PHILOSOPHY AND PROGRAM MISSION

A. Basic Assumptions and Understandings

This section should be used to "educate" the reader (e.g., School Board member, community groups, parents); that is, to summarize briefly what is known about technology applications in education and to state some general principles that form a conceptual foundation for the plan. Such points as the following might be addressed:

- Significant changes are likely to take place over the next three to five years in curriculum and learning, the organization and staffing of schools, learning/information technologies, and society in general.
- Planning for changes of the scope anticipated by the introduction of new learning/information technologies will require a long-range effort.
- The Technology Applications Planning model provides a framework for undertaking comprehensive, long-range planning.
- Applications of technology need to be guided by curriculum requirements, by what we expect students will need to know and be able to do in order to learn effectively and pursue productive careers.

- Limited resources require that school districts set priorities for technology applications in the curriculum. Setting priorities requires agreement on competencies required of *all* students, as well as optional or supplementary skills and knowledge.
- Technology can be used as both a catalyst and a tool for revitalizing our existing curriculum.
- School districts need to provide equitable access to technology for all students. Teachers must select appropriate applications based on each student's needs and capabilities.

B. Program Mission and Goals

This brief section is based on the assumptions and understandings presented in the previous section. The mission statement needs to communicate in one or two sentences the overarching outcome of the program. The following is an example of a mission statement. Note that it conveys a broad sense of what the program will accomplish.

By June 1986, all graduates of our schools will be able to use the microcomputer and related learning/information technologies to pursue their further education and careers of their choice.

This statement communicates to the school board and to the public the general purpose of the program and serves as a foundation for the program goals. The goals should be broad statements that reflect the purpose and the major program direction. Some examples of goals are:

- Students will be able to use the computer and related learning technologies as a teaching device to acquire knowledge and develop skills.
- Students will be able to use the computer and related learning technologies as a tool to access, organize, analyze, and communicate information.
- Students will be able to instruct the computer to perform specific operations.
- Students will become aware of the use of computers and other information technologies in our society.

III. TECHNOLOGY IN THE CURRICULUM

A. Present Status of Technology Applications

This section should provide a brief analysis of the current status of technology applications in the district. Typically, these applications may be in the form of the "computer literacy" program or in specific applications within subject areas (e.g., word processing in the language arts curriculum or math tutorials in the elementary grades). The purposes of this status report are to provide an overview of what's going on and to establish a base on which future action steps can be built.

Here are some questions that might be addressed in developing a status report:

1. Is there a written curriculum used by the staff teaching technological competencies?
2. Does the curriculum specify:
   - *a scope and sequence of competencies
   - *instructional materials and equipment
   - *instructional strategies and methods
   - *student performance measures and procedures
3. What applications of computer assisted instruction are being implemented? In what grades and subject areas?
4. What applications of general-purpose software tools are being implemented? In what grades and subject areas?
5. What are the results of these applications to date?

B. Proposed Computer Competencies

The identification of computer (or technology) competencies is one of the most important components of the plan. Without a clear delineation of what is expected of students, it is impossible to be sure that other activities (e.g., staff development, software and hardware selection, program organization) will be effective.

At this stage in our use of technology, the major focus is on the computer. To give focus to curriculum development, whether it be in generic competencies or subject-specific applications, it is important to identify the specific

competencies each student is to master prior to graduation. Keep in mind that these competencies may need to expand over time to take into account new learning tools such as interactive videodiscs, online databases, and electronic mail.

The next step is to develop a rough scope and sequence for specifying when these competencies will be addressed across the grade levels. This scope and sequence will demonstrate how equitable access to technology is to be guaranteed for each student. While all the details need not be provided in the plan, this sequencing is important in setting priorities for staff development, and for software and hardware procurement and allocation. One or two charts would be useful in presenting this information. (See Figure 1.)

C. Curriculum Integration

This section of the plan is one of the most important, because it describes the way in which the technological competencies will be incorporated into the curriculum. The level of detail provided here is a function of how much work the planning team can accomplish and how much detail is desired at this proposal stage. It may be difficult or premature to specify all of the curriculum integration steps in the plan, particularly since it may be prepared before the faculty and administrators have had an opportunity to expand their knowledge and skills, and before they have worked on the curriculum. Moreover, school boards typically do not expect to review the curriculum in detail.

FIGURE

SCOPE AND SEQUENCE [illegible] COMPETENCIES

GRADES	COMPUTER COMPETENCIES	
	REQUIRED	OPTIONAL
1-5	keyboard knowledge operation and care of hardware/ software/peripherals	history of the computer career opportunities social impact of computers misuses of computers
6-8	touch typing algorithms computer operating system functions introduction to computer languages word processing	programming history of computers social impact of computers
9-12	introduction to: databases graphics spreadsheets telecommunications in-depth application of word processing in content areas, as appropriate	specialization in applications misuses of computers career opportunities

At this stage then, the plan may serve only to provide broad illustrations of curriculum/technology integration and to specify what activities will be conducted to accomplish the integration. The following tasks will need to be accomplished:

1. Select curriculum areas for initial integration.
2. Assess each area selected to determine where improvements are needed.
3. Examine available technology to identify effective and productive tools.
4. Identify targets of opportunity: areas where curriculum needs and available technologies coincide.
5. Develop instructional applications.
6. Develop instructional materials and lessons.

You will need to decide how much of this work can be accomplished in your school district over the period addressed by the plan.

Typically, the plan can provide some detail on tasks one through four. Thus, this section of the plan will need to specify what curriculum areas will be addressed using what technologies. Here, also, a chart should be provided to present the overall curriculum plan.

D. Proposed Action Steps

This section should describe the specific major activities that will be conducted to accomplish the tasks that are delineated in the previous section. This description of activities should be organized in at least two phases: what will be accomplished in the near term, usually during the current school year, and what will be accomplished over the balance of the period addressed by the plan. The activities could also be presented by year. Here are some examples of action steps dealing with curriculum/technology integration.

Phase I — September 1986 through June 1987

1. Establish a scope and sequence of required technology competencies for *all* students. Establish a list of optional/elective competencies for selected students.
2. Work closely with the curriculum development committees in language arts and math to integrate the computer competencies with the curriculum objectives.
3. Prepare course outlines for optional/elective competencies.
4. Increase attention to tool applications, particularly at the junior high and high school levels.

Phase II — July 1986 through June 1989

1. Implement pilot projects for other tool applications in various content areas.
2. Implement elective courses in specialized computer science courses.
3. Implement complete integration of computer competencies throughout the curriculum.
4. Establish pilot projects in teaching and using the computer competencies in teaching writing and mathematics.

IV. SOFTWARE AND SUPPORT MATERIALS

A. Present Status of Software and Support Materials

This section should present a description of software and support materials currently in use in the district. While it is unlikely that all of the software is being used in an integrated manner (i.e., formally linked to specific instructional objectives), the description should emphasize such linkages where they do exist. The majority of the software collection typically will be in the form of stand-alone programs, rather than comprehensive CAI programs. Both should be described.

Some questions that might be addressed in this section are:

1. Is there a district-wide software selection and acquisition process?
2. How well is the software collection matched to the curriculum objectives?
3. Is there an up-to-date inventory of software and related support materials?
4. Is there a software allocation and distribution system?

B. Software for the Curriculum

Projections of software needs should be based on the projected curriculum applications described in Chapter III. Thus, the major portion of this section should be devoted to an overview of the types of software that will support the curriculum/technology initiatives. For example, a typical initiative is to introduce word processing into the language arts/English curriculum at the secondary level. Another common program is the use of a comprehensive basic skills instruction and instructional management system in the elementary grades, particularly for compensatory education. Each of these programs requires a very different software support system.

In addition to computer software, this section should describe any additional materials that might be related to planned curriculum initiatives. For example, the use of interactive video will require the acquisition of videotapes or discs. Electronic mail, online databases and other telecommunications capabilities will require communications software and related support materials.

In addition to software, teachers will need support materials — manuals, illustrations, work sheets and other hard copy. Some of this material can be purchased, but much of it may need to be developed by the teachers themselves. Describe the general types of materials that may be needed, and provide some examples. Describe how any materials development will be incorporated into staff development activities described in Chapter V.

This section should also describe the process the district will follow in selecting software. Because there is so much material of questionable value, decision makers will need to be assured that the district is making good choices. Such choices require that the software be both of exemplary quality and appropriate for the intended application.

C. Software Allocation and Management

Many of the needs that are likely to be identified in the software status report will fall into the category of allocation and management. Because software is relatively expensive, and because instructional materials budgets are limited, considerable attention needs to be given to organizing the software collection and assuring its efficient and effective distribution throughout the district.

This section should describe the software management system to be used. For example, how will the software collection be coordinated? At what level: classroom, school, district? Who will be responsible for maintaining the collection (e.g., providing backup copies, ordering replacements, maintaining an inventory)?

D. Proposed Action Steps

This section should describe the specific major activities that will be conducted to accomplish the tasks that are delineated in the previous sections. This description of activities should be organized in at least two phases: what will be accomplished in the near term, usually during the current school year, and what will be accomplished over the balance of the period addressed by the plan. The activities could also be presented by year. Here are some examples of action steps dealing with software and support materials.

Phase I — September 1986 through June 1987

1. Establish a software selection committee and process.
2. Establish a software management system.
3. Procure software to support literacy and pilot project activities, particularly those focusing on curriculum integration.

Phase II — July 1987 through June 1989

1. Establish district-wide policies for software management.
2. Develop activities for procuring or preparing supplementary teacher and student materials for software.

V. STAFF DEVELOPMENT

A. Present Status of the Staff Development Program

In most cases, a substantial amount of staff development (primarily training) will have already taken place in the district. These

activities should be described briefly, and some synopsis of the faculty's new skills and knowledge should be presented. The ***CAPS Guidebook*** contains some forms that may be adapted for this purpose.

Be sure to relate this assessment of staff development activities to the curriculum initiatives outlined in Chapter III. What has been accomplished to date that has prepared the staff to carry out those initiatives? What remains to be done?

Other questions that may be addressed in this section are:

1. Is there an inventory of staff competencies, updated at least yearly?
2. Is the staff development program linked closely to the curriculum/technology integration initiatives?
3. Are staff development activities evaluated? If yes, what does the evaluation indicate?
4. What other staff development activities are conducted in addition to training?

B. Proposed Staff Competencies

Staff development resources, time as well as monies, are likely to be limited. For this reason, this section should focus almost exclusively on activities for those teachers and administrators who will be responsible for carrying out the curriculum/technology initiatives described in Chapter III. Make it clear that staff development for those teachers not involved in those initiatives will be given a lower priority. Be sure to correctly estimate the scope of staff development required to accomplish the initiatives. Include a description of activities in addition to training that will be employed to support successful implementation.

C. Matching Staff Development to Curriculum

In most cases, the majority of staff development activities will need to be directed to subject area teachers, rather than to specialists whose sole responsibility is to teach computer literacy. Such training will be directed to incorporating technology into subject areas. This training may need to include work on the curriculum itself; that is, revitalizing the existing curriculum to reflect new student needs and new findings from research and practice. This section should describe any general curriculum improvement work in order to demonstrate that the technology is serving in part as a catalyst for more general improvements as well as automation. An illustration of projected curriculum improvements that will be accomplished should be provided. A chart depicting the parallel curriculum and staff development activities might also be provided (see Figure 2).

D. Proposed Action Steps

This section should describe the specific major activities that will be conducted to accomplish the tasks that are delineated in the previous sections (B and C). This description of activities should be organized in at least two phases: what will be accomplished in the near term, usually during the current school year, and what will be accomplished over the balance of the period addressed by the plan. The activities could also be presented by year. Show how staff development activities will be coordinated with projected curriculum initiatives so that teachers are trained just prior to the start of program implementation. Here are some examples of action steps dealing with staff development.

FIGURE 2

STAFF DEVELOPMENT ACTIVITIES

PROPOSED CURRICULUM INTEGRATION INITIATIVES	STAFF DEVELOPMENT ACTIVITIES
1. Word processing introduced in grade 6-8 language arts and social studies classes in 9/86	1. Orientation for teachers in May/87 2. 10 hours of training for teachers in 5-6/87 3. Curriculum applications work with teachers in 8/87 (12 hours) 4. Implementation support for teachers (9/87 thru 12/87)

Phase I — September 1986 through June 1987

1. Conduct targeted assessments to identify training and development needs of teachers who will be implementing curriculum initiatives.
2. Provide curriculum development resources and training to teachers implementing curriculum initiatives.
3. Update inventory of staff competencies.

Phase II — July 1987 through June 1989

1. Expand training to teachers conducting new curriculum initiatives.
2. Provide in-class support to teachers implementing curriculum initiatives.

EQUIPMENT

A. Present Status of Equipment

This section should present a description of computers and related equipment currently in use in the district. As with software, it is possible that all of the computers are not being used in an integrated manner (i.e., formally linked to specific instructional objectives), nor are equipment utilization rates likely to be at or near 100%. The status report should provide information on how and how often the equipment is being used.

Some questions that might be addressed in this section are:

1. Is there a comprehensive inventory of computers and related equipment?
2. How well is the hardware matched to the requirements of the curriculum?
3. Is there a process in place for monitoring new developments with respect to new learning and information technologies?
4. Is there a hardware allocation and distribution system?
5. What contributions from business are available?

B. Equipment Requirements

Projections of hardware needs should be based on the proposed curriculum applications described in Chapter III. Thus, the major portion of this section should be devoted to an overview of the types of equipment that will support the curriculum/technology initiatives. For example, a typical initiative is the use of word processing in the language arts/English curriculum at the secondary school level. Another common program is the use of a comprehensive basic skills instruction and instructional management system in the elementary grades, particularly for compensatory education. Each of these programs requires different equipment. While small lap computers may be appropriate for word processing, effective and efficient basic skills instruction may require a minicomputer, particularly if an instructional management system is used to track student progress and place students at appropriate instructional levels.

In addition to computers, this section should describe any additional equipment that might be related to planned curriculum initiatives. For example, the use of interactive video will require the acquisition of videodisc equipment and special boards to connect the equipment to the computer. Introducing electronic mail, online databases and other telecommunications capabilities will require modems.

This section should also describe the process the district will follow in selecting hardware. Because equipment capabilities are changing so rapidly, and because all computers are not compatible, decision makers will need to be assured that the district is making good choices. Such choices require that the computers be of both exemplary quality and appropriate for the intended application.

C. Equipment Allocation and Management

Many of the needs that are likely to be identified in the equipment status report will fall into the category of allocation and management. Because the number of students per computer will remain high in most districts for some time, considerable attention needs to be given to organizing computers and assuring their efficient and effective distribution throughout the district. This section should describe the major configurations that will be employed (e.g., lab, classroom-permanent, classroom-rotating), and how these configurations will support the planned curriculum initiatives. The types of configurations used will impact on staffing and organization, as well as on utilization rates.

This section should also describe the equipment management system to be used. For example, how will the equipment be maintained? How will security be provided? Who will be responsible for maintaining an equipment inventory?

D. Proposed Action Steps

This section should describe the specific major activities that will be conducted to accomplish the tasks that are delineated in the previous sections. This description of activities should be organized in at least two phases: what will be accomplished in the near term, usually during the current school year, and what will be accomplished over the balance of the period addressed by the plan. The activities could also be presented by year. Here are some examples of action steps dealing with equipment.

Phase I — September 1986 through June 1987

1. Establish an equipment selection committee and process.
2. Establish a microcomputer lab at each of the middle schools.
3. Establish specifications for a minicomputer-based CAI system.

Phase II — July 1987 through June 1989

1. Purchase a CAI system for use at the elementary level.
2. Establish a word processing lab at the high school.
3. Purchase an interactive videodisc system.
4. Install a guidance information system at the high school.

III. PROGRAM ORGANIZATION

A. Present Organization of the Program

This section should describe the existing organization and staffing of the technology applications program. Typically, such programs suffer from inadequate staffing and organization because they grow without an overall design, often with a meager budget and the dedication of a few committed teachers and administrators. As the program expands, such ad hoc organization will impede development. Integrating technology throughout the curriculum will require innovative and effective staffing and organization.

The following are some questions that may be addressed in providing a status report on this component:

1. How is the program coordinated at the district and building levels?
2. What are the utilization rates for equipment and facilities?
3. How are technology applications provided equitably?
4. Are there policies and procedures governing such issues as student use of labs, loan of computers to teachers, and software piracy?
5. How is the technology applications program monitored and evaluated?

B. Staffing Requirements

Even with optimum integration of technology throughout the curriculum, classroom teachers may not be sufficient to conduct the entire program. This section should describe any new staff that will be required to implement the program. The most common need is for a program coordinator, someone who will oversee the development and implementation of the program throughout the school district. Sometimes specialists are required, such as computer science teachers or data processing managers.

C. Roles and Responsibilities

In addition to — sometimes instead of — new staff, consideration may need to be given to redefining the roles of existing staff or allocating teachers and resource personnel differently. Successful implementation of the program may require that more experienced classroom teachers take on part-time roles as itinerant specialists to work with other teachers in their classrooms. A teacher may need to be assigned to serve as a computer lab coordinator. Given existing personnel policies and procedures, such changes are significant and will need to be specified in this section.

D. Policies and Procedures

This section should describe any new policies that may need to be established to govern the operation of the program. The following issues may require school and district-level policies and procedures.

1. loan of equipment to teachers for use at home
2. software copying by teachers and students
3. software and hardware selection and purchasing
4. use of labs after school by teachers, students, parents and community members
5. scheduling of labs by teachers; allocation of equipment and software to classrooms

E. Staging and Phasing

Limited time, energy and resources require that the program goals and objectives be addressed over a multi-year period. This section of the plan should describe how each of the major program initiatives will be implemented over the period of the plan. This description should be supplemented with a chart and be consistent with the major action steps proposed for each of the program components.

F. Implementation Activities

The planning process should have identified several constraints that typically effect the implementation of new programs in the district. In addition, there are likely to be some new issues related to the technology applications program. This section should discuss the most significant of these constraints and describe how they will be addressed. Some of the implementation needs that should be anticipated are:

1. teachers' need for assistance in classroom implementation
2. principals' need for support
3. underestimated time requirements
4. activities that don't work
5. instructional materials need revision

G. Program Monitoring and Evaluation

Because many of the program initiatives will be in the form of pilot projects, it will be necessary to monitor implementation to be sure it is consistent with what was planned. In addition, the plan should specify how the impact of the technology on student performance will be determined. This section should describe what will be monitored and how. A chart should be used to depict each curriculum initiative and the formative and summative evaluation procedures and instruments that will be used to assess progress and impact.

H. Proposed Action Steps

This section should describe the specific major activities that will be conducted to accomplish the tasks that are delineated in the previous sections. This description of activities should be organized in at least two phases: what will be accomplished in the near term, usually during the current school year, and what will be accomplished over the balance of the period addressed by the plan. The activities could also be presented by year. Here are some examples of action steps dealing with program organization and implementation.

Phase I — September 1986 through June 1987

1. Hire a district-wide computer program coordinator.
2. Develop a policy regarding software copying.
3. Assign and train two teachers to serve as resource persons.
4. Prepare a documentation and evaluation plan for the program.

Phase II — July 1987 through June 1989

1. Study needed new staffing needs for the program.
2. Prepare an annual program evaluation report.
3. Appoint computer liaisons at each school.

VIII. BUDGET PROJECTIONS

A. Review of Expenditures To Date

Before presenting a budget for the technology applications program, a brief review of expenditures in previous years should be provided. The report should be presented in chart form and be organized according to the major program components and expenditure categories (see Figure 3). At a minimum, the budget review should identify expenditures for staff, staff development, equipment, software and support materials, maintenance and supplies, and miscellaneous expenditures such as security and insurance. A brief narrative should explain any important expenditure items or special factors.

B. Proposed Program Budget

This section should present and discuss the proposed program budget for the period of the plan (in most cases, three to five years). The budget should be presented in chart form, according to the major program components and expenditure categories. At a minimum, the budget review should identify expenditures for staff, staff development, equipment, software and support materials, maintenance and supplies, and miscellaneous expenditures such as security and insurance.

FIGURE 3

PROJECTED BUDGET REQUIREMENTS

PROGRAM COMPONENT: Word Processing, Grades 6-8

EXPENDITURE CATEGORY	Year 1	Year 2	Year 3
Staff			
Staff Development			
Equipment			
Software and Materials			
Maintenance			
Miscellaneous			
TOTALS			

PROGRAM COMPONENT: Introduction to Computer Languages, Grades 6-8

EXPENDITURE CATEGORY	Year 1	Year 2	Year 3
Staff			
Staff Development			
Equipment			
Software and Materials			
Maintenance			
Miscellaneous			
TOTALS			

In most cases, the proposed budget should be explained in detail. Linkages between recommendations, proposed action steps and line items should be explained. Significant increases in line items over those in previous years should be explained. The budget might also be presented in terms of implementation phases, showing details for the Phase I program and cost estimates for Phase II. If the proposed budget is substantially greater than what has been available in past years, some indication of priority budget items should be presented. These priorities should be linked back to program priorities so that decision makers understand what the budget is buying in terms of programs and services for students, not just equipment and software.

One way to facilitate budget decisions is to present the budget according to the major program initiatives. While a line item expenditure budget will be needed to summarize expenditures in a traditional manner, a program component budget will allow decision makers to see what each initiative costs. For example, if all eighth grade students are to be taught word processing in conjunction with the language arts program, a budget for that initiative can be presented. The same can be done for other initiatives, such as a minicomputer-based basic skills instruction program or a computer science elective at the high school.

SUMMARY OF PROPOSED ACTION STEPS

To provide a review of the action steps for each component, this chapter should display all of the action steps organized by phase. A timeline may be used as a supplement to the list of steps.

This section of the plan can present the planning committee's major recommendations. These recommendations are also presented as part of the Executive Summary. These recommendations should be based on the action steps that are presented at the end of each major section. They should be organized in the general sequence of the plan and the specific section to which the recommendation is addressed should be cited. Here are some examples of recommendations from actual plans.

Recommendation

Purchase or lease/purchase a minicomputer to be located in the high school and networked with existing and compatible microcomputer terminals. The acquisition of the minicomputer will allow currently contracted services to be conducted within the schools and will be used for administrative and instructional purposes. A proposal can be developed with specifications requesting a major corporate contribution of approximately 50% towards the purchase of the minicomputer.

APPENDICES

Because the plan needs to be presented as concisely as possible, the appendices can be used to organize supporting information. The following materials are some of the supporting documentation that may be placed in the appendices:

1. inventories of equipment and software
2. lists of planning committee and task force members
3. examples of curriculum applications presently being used in the district
4. descriptions of training programs in place
5. policy statements

REFERENCES

California State Department of Education. ***Computer Applications Planning.*** Sacramento, CA: Calif. State Department, 1985.

Georgia Department of Education. ***Educational Technology: Local Planning Guide.*** Atlanta, GA: Georgia Department of Education, 1985.

Merrimack Education Center. ***Computer Applications Guidebook.*** Chelmsford, MA: Merrimack Education Center, 1984.

Merrimack Education Center. ***CAPS Profile.*** Chelmsford, MA: MEC, 1986.

Appendix A
Planning Task Checklist

This checklist can serve as a review of the planning process. The planning team may want to use it to monitor progress or to explain work underway to the school committee and other groups.

1. Preliminary Activities

- ☐ Form the planning committees
- ☐ Establish broad direction
- ☐ Conduct orientation activities
- ☐ Inventory current computer application
- ☐ Identify planning resource needs

2. Integrating Computers into the Curriculum

- ☐ Develop broad goal statements
- ☐ Develop student competency statements
- ☐ Set planning priorities
- ☐ Develop curriculum objectives
- ☐ Develop instructional strategies and applications

3. Staff Development

- ☐ Identify required staff competencies
- ☐ Determine actual staff competencies
- ☐ Establish staff development program

4. Hardware and Software Acquisition

- ☐ Establish selection criteria and process: software and hardware
- ☐ Prepare procurement specifications

5. Organization and Implementation

- ☐ Provide for program coordination and implementation
- ☐ Develop logistical support system
- ☐ Develop materials and equipment support system

Appendix B

Technology Plan
Table of Contents

SECTION — EXECUTIVE SUMMARY

1. The School District
- —Current Status
- —Objectives/Recommendations Near-Term
- —Objectives/Recommendations Long-Term
- —Organization Staffing
- —Implementation

2. Curriculum
- —Present Status
- —Integration
- —Models
- —Proposed Action Steps

3. Software and Support
- —Present Status
- —Allocation and Management
- —Software for the Curriculum
- —Proposed Action Steps

4. Staff Development
- —Present Status
- —Staff Competencies
- —Matching Staff Development/Curriculum
- —Proposed Action Steps

5. Equipment/Hardware
- —Present Status
- —Emerging Technologies
- —Equipment Allocation and Management
- —Equipment Requirements
- —Proposed Action Steps

6. Program Organization
- —Present Status
- —Staffing/Organization
- —Staging and Phasing
- —Monitoring and Evaluation
- —Proposed Action Steps

7. Budgeting
- —Personnel
- —Training
- —Software
- —Equipment
- —Maintenance/Other

8. Other Important Considerations
- —Equity
- —Home/School
- —Networking
- —Financial/Investment
- —Partnerships/Donations

APPENDICES

REFERENCES

The sample table of contents described above can be used as an outline for structuring and organizing the content of the school district's technology plan. It can also be modified and used as a task analysis timeline to assist in monitoring the development of the plan.

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